ISSUE 13 MICHAELMAS 2013 GONVILLE & CAIUS COLLEGE CAMBRIDGE

Once a Caian...

Caius remembers Crick

Liars, Damned Liars and **Economists!**

Face to Face with Richard III

Chemistry's Loss

Roeland Verhallen

(Left to right) Professor Anthony Edwards (1968), Professor Roger Carpenter (1973), Professor John Mollon (1996), President of Caius, and Professor Eugene Paykel (1985).

Yan Liang

Caius

Among historians of the sixteenth century, the matriculation books of Gonville and Caius are justly celebrated. For they are unique in recording rich details of parentage, schooling and father's reported occupation or status. Much of our knowledge of the secondary education system of the sixteenth century comes from those entries in heavily abbreviated Latin.

Caius College continued to maintain its detailed matriculation books over the centuries, and so in 1950 we find a remarkable page that juxtaposes the signatures of two of our eleven Caian Nobel laureates.

The matriculand was Francis Harry Compton Crick, born on the 8th of June 1916. And the Master who admitted him was James Chadwick (1919), who had received the Nobel Prize in Physics in 1935 for his discovery of the neutron. If a day comes when the Oxbridge colleges are even harder pressed than now, this single page may fetch a good price at auction. But it isn't going to happen under the Mastership of Alan Fersht.

Francis Crick was being matriculated as a graduate student; he was a married man of 33; and in 1950 the MCR was not the active community it is today. So it would be easy to suppose that Crick had little connection with the College during that period of his life. Not so.

Alan Fersht

Stonemasons from the firm of Brown & Ralph lay the roundel at the heart of the new memorial to Francis Crick (1950). The guilloche pattern combines a pair of serpents, beloved of Dr Caius, with the double helix of DNA, identified in 1953 by Watson and Crick.

Alan Fersht

The serpents' gills are a clue to some of the scientific arcana hidden within the memorial.

Yao Liang

The Master, Professor Sir Alan Fersht (1962), addresses the assembly of Caians and friends of the College who gathered to remember Francis Crick on 25 April 2013.

remembers Crick

by Professor John Mollon (1996)

Several weeks before Crick's formal entry to the College, the Governing Body held its termly 'General Meeting'. Business then was not so different from now. The Annual Accounts were examined and accepted. A distinguished Bishop was elected to an Honorary Fellowship. And then it was agreed to offer dining rights to a select group outside the Fellowship, among them Francis Crick.

This system of granting dining rights is an important part of college life in Oxford and Cambridge: it prevents a Fellowship becoming too inbred, and it widens and deepens the intellectual life of the College at dinner. However, the gift of dining rights to Francis Crick, weeks before he was even in *statu pupillari*, was unusual. Michael Prichard (1950), who joined the Fellowship the same year, tells me that these privileges were extended during this period to only one other research student – a man of older years, who was in a position to make a present of pheasants to the Fellows every Christmas, at a time when Britain still enjoyed food rationing.

In the case of Francis Crick, the offer of dining rights was based on his existing experience in research and his known skills as a conversationalist. So the Minutes of that General Meeting in April 1950 are historically important. They show that Crick was not an unrecognised figure at this stage in his career. Clearly Chadwick and the Fellowship must have been aware already of his promise and intelligence. This was three years before Watson and Crick submitted to *Nature* their

Roeland Verhallen

Watched by the Master, Crick's collaborator, Dr James Watson, cuts the ceremonial ribbon in Caius blue and black. Two student trumpeters, Malachy Frame (2011) and Matt Letts of Fitzwilliam College, gave the first performance of *Fanfare and Double Helix*, specially composed for the occasion by Professor Robin Holloway (1967).

paper entitled 'A Structure for Deoxyribose Nucleic Acid' – the paper that set in train so many of the scientific, medical and social developments of the last sixty years.

Crick took up the Fellowship's invitation and he continued to dine regularly throughout his Cambridge period. Fellows remember him as someone who had a quick, light wit, and who would readily discuss any subject. He was not unkind in his wit, but, faced with bombast, he might mischievously entertain other diners by egging on the pompous guest with admiring questions.

In the autumn of 1975, at a time when he was considering his future path, Crick allowed his name to go forward as a candidate for the Mastership of Caius. His advocates in the College were Richard Le Page (1963) and Jeremy Prynne (1962), and they recall the discussions they had with Francis in his house in Portugal Place. He assessed systematically the nature of the job and the constraints that it would impose on him. In the end, he withdrew from the contest. A major factor may have been the attractive possibility of a post at the Salk Institute. Another consideration was his atheism. Fierce and publicly declared as this was, Crick did not want it to obtrude or to offend others in College. His feelings were clear: he would not 'feel comfortable' (as he tactfully put it) in carrying out the formal duties of the Master in Chapel or reading the long form of the grace at dinner (he was happy though with 'Benedictus benedicat'). More generally, he honourably felt that his large and sometimes controversial personality might not match the expectations of the College. After he had withdrawn as a candidate for the Mastership, it became evident that he wanted to devote the rest of his life to theoretical molecular biology and neuroscience, and his ensuing sabbatical at the Salk Institute allowed him to identify the perfect setting for this work.

Yet there is no doubt of Crick's affection for Caius and there is no doubt of the College's recognition of his stature. Watson and Crick's 1953 paper stands to twentieth-century biology much as Darwin's *Origin of Species* stands to nineteenth-century biology. And so, in 2006, when Lord (Christopher) Tugendhat (1957) and Matt Ridley suggested that Caius should mark his memory, the Governing Body was unanimous in doing what Governing Bodies do: it set up a Working Party. Identifying a suitable form of memorial was to take several years. For there are more than 100 Fellows and each is jealous of his or her own aesthetic judgement.

Some, sensible of Crick's striking profile, favoured a bust, a bas-relief, or even a statue in Tree Court; but there were always other Fellows who were firmly against a figurative representation. We're a dry and land-locked College, coveting a 'corridor to the river' as Neil McKendrick (1958) put it; and at one point there seemed unanimity in the Fellowship that the memorial should take the form of a fountain. So the Working Party commissioned two alternative designs from Britain's leading designers of water features. Each design made its own allusion to the double helix. Yet neither recommended itself to the Fellowship, and it became clear that every Fellow had a different mental conception of what form a memorial fountain might take.

The solution came in a conversation at dessert on February 10th, 2009. It's possible to recover the exact date, since Fellows pay for their wines, and the Bursary records show that this was the one evening that month when Paul Binski (1975), Julian Sale (1986) and I were all dining. Professor Binski drew our attention to the guilloche pattern used in classical and medieval buildings to mark a processional way. His original sketch was on the back of a wine card. Often the guilloche pattern was interrupted by a roundel, a pause marker, that represented completeness. Together, the two stretches of guilloche and the roundel suggest the structure of a chromosome, and so this was the design that the Working Party set about developing.

Crick allowed his name to go forward as a candidate for the Mastership of Caius

The final version, now cut in stone within the Great Gate, represents the procession of knowledge from the College to the outside world. It makes allusion not only to the guilloche of the classical processional way, but also to our own traditional Caian symbolism. In the arms that John Caius commissioned for the College, paired serpents resting on a marble stone were prominent, 'betokening... wisdom with grace founded upon virtue's stable stone' (Christopher Brooke's *History*, p 64). Serpents are exquisitely incorporated in the silver caduceus that Caius presented to the College. They also recall for us the older symbolism of the Staff of Aesculapius.

However, the Working Party were then faced with a dilemma. The two helical strands of DNA are anti-parallel. To make an allusion to DNA, should one helix end in a serpent's head and one in a tail? That would be discordant with the traditional symbolism of the College. Molecular biologists will spot how the problem was solved. Initially the viewer takes the markings on the necks of the mythological serpents to be gills or perhaps, aposematic signs; but they can also be read as roman numerals, marking the 3' and 5' ends of DNA.

There are further arcana concealed in the central roundel. The letter forms in the roundel represent the process of transcription from (ungilded) DNA to (gilded) RNA. All Caians, of course, will recognise the sequence GCC which is embedded in the DNA sequence and which happens to represent a valid codon in the genetic code. To interpret the RNA sequence, however, you need to carry in your head the single-letter code for amino acids. From right to left, it gives F for phenylanaline and C for cysteine – and then a termination code. We rely, however, on existing Caians not to reveal this reading to future undergraduates: David Summers (1974) plans to set it as a puzzle for his first-year genetics students.

The memorial is placed so that it can be seen by the public from the plane that in Cambridge is boldly called Senate House Hill. This site became possible as a result of the recent restoration of the metal gate at the initiative of Michael Prichard. We envisage that generations of tour guides will give increasingly garbled accounts of the symbolism long into the future.

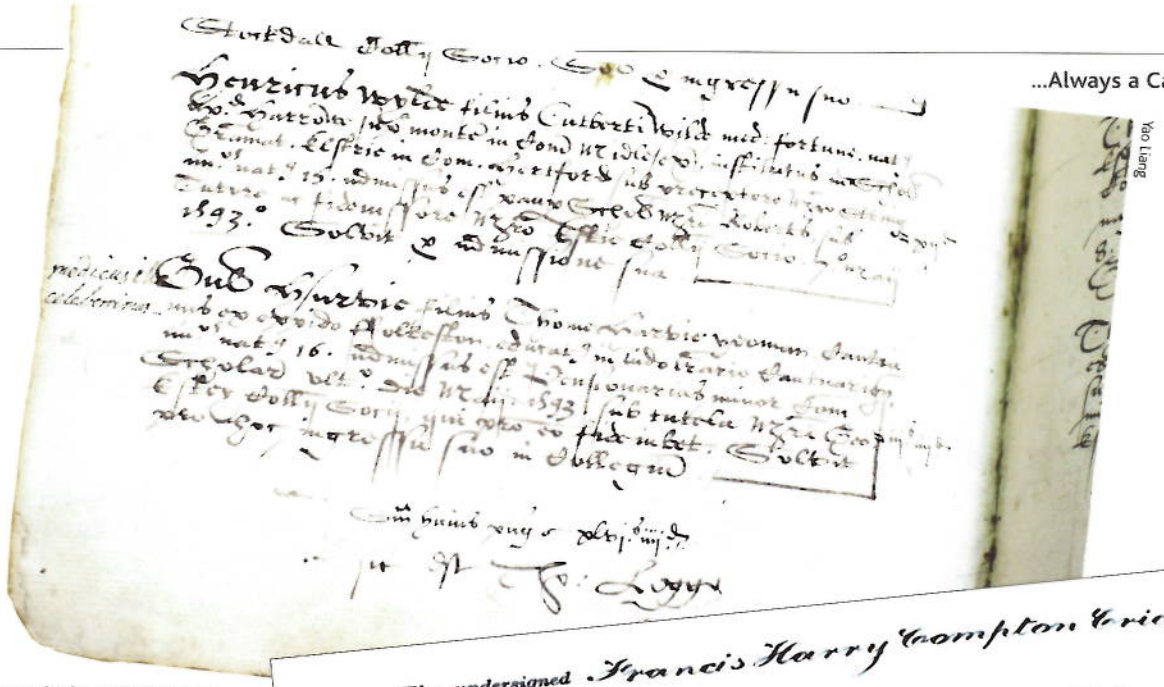
The members of the Working Party were Morris Brown (1989), Roger Carpenter (1973), Alan Fersht (1962), Joe Herbert (1976), John Mollon (1996), K. J. Patel (1989), Julian Sale (1986), David Secher (1974) and David Summers (1974). All contributed to the tortuous development of the memorial into its final form, but it has been Professor Roger Carpenter who with style (and considerable patience) has translated successive vague ideas into elegant designs. And it was Lida Kindersley, Fiona Boyd and their colleagues from the Cardozo Kindersley Workshop who translated Roger Carpenter's designs into slate and stone. The memorial was funded by subscriptions from the Fellowship and close friends of the College.

Exactly 60 years to the day after the publication of Watson and Crick's paper, on the 25th of April, 2013, a ceremony was held to unveil the monument. Opening the ceremony, Professor Sir Alan Fersht, Master of the College said of Watson and Crick's achievement: 'It's roughly equivalent to the theory of relativity or discovering the laws of gravity and it's the keystone of modern biology. They realised they'd done something enormous, but I'm not sure they realised how important it has been in practical terms'.

The ceremony included a noble new composition for two trumpets, created for the occasion by Professor Robin Holloway (1967) and entitled *Fanfare and Double Helix*. It was performed by current students, Matt Letts and Malachy Frame (2011).

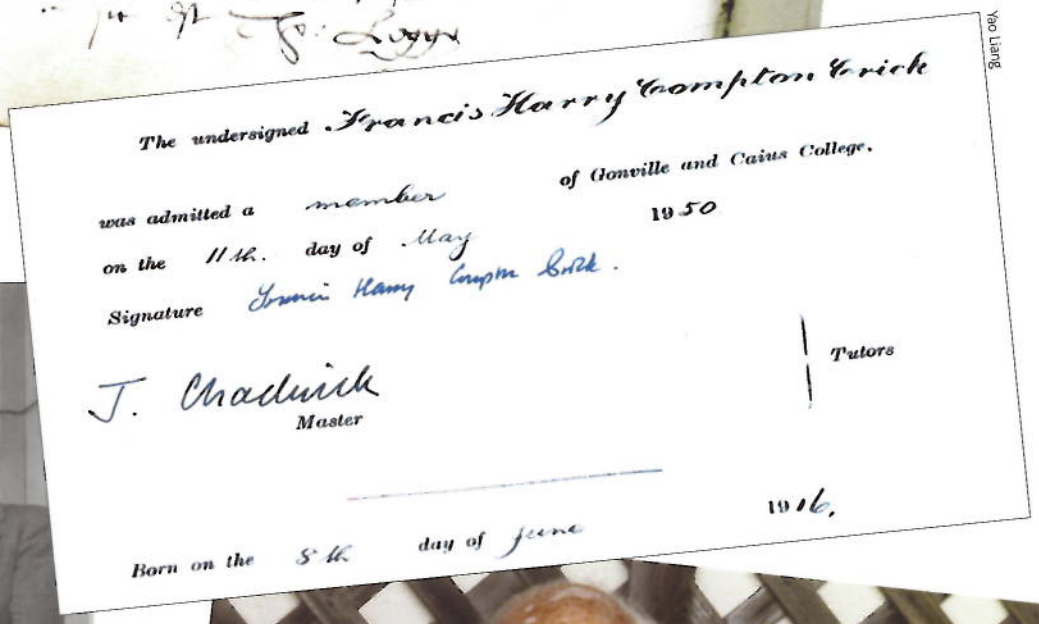
The ribbon, of course, was a double helix in Caius colours, specially prepared by the College Housekeeper, Karen Heslop. It was ceremonially cut by Dr. James Watson, who shared the 1962 Nobel Prize with Francis Crick and Maurice Wilkins. Paying tribute to his old collaborator, Jim Watson declared: "Francis was the brightest person I ever interacted with."

Right: The College's matriculation books contain a treasure trove for historians of personal and family information about Caians of the sixteenth century.



Yao Liang

Below right: This page records the matriculation of Francis Crick in 1950. Later historians will note that it carries the signatures of two Nobel Prize winners, Crick himself and the Master of that time, Sir James Chadwick (1919).



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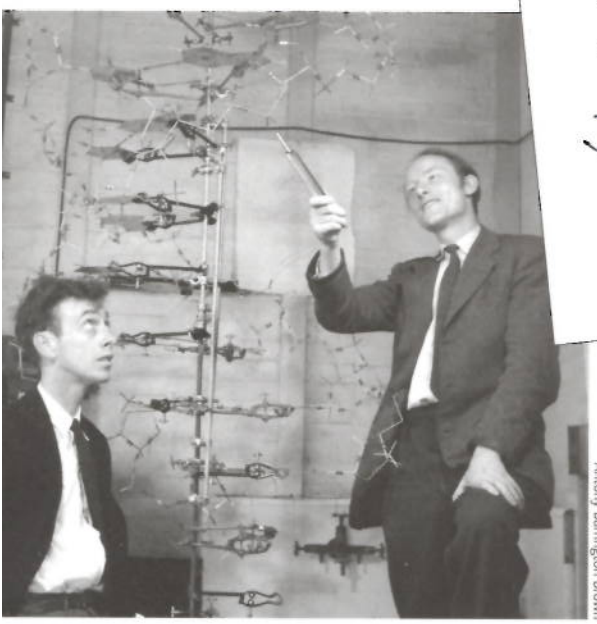

Antony Barrington Brown

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Antony Barrington Brown

In his will, the late Antony Barrington Brown (1948) left his entire photographic library to the College. It includes "BB"'s historic 1953 photographs of Crick and Watson, still somewhat abashed by their new-found celebrity, with their home-built structure of the double helix. This photograph continues to be reproduced frequently in publications all over the world, providing, as BB always intended, a valuable stream of income to his old College. In 2003, BB travelled to California to take photographs of Francis Crick and his wife Odile at home, to mark the fiftieth anniversary of the great discovery.